

## THE BLOOMFIELD CITIZEN.

SATURDAY, JULY 23, 1887.

## The Cyclers.

The roll of the wheel is the poetry of motion. To control it requires skill, a nice adjustment of body, quickness of decision, and nerve. As the great circle moves noiselessly through the country, it furnishes exercise, air, and a variety of scenery to charm its rider. The moving cycle is pleasant to look upon, albeit the bewildered Irishman, to whom it first appeared, described its rider as "the devil astride a wheel." Considerable experience is necessary for its complete control. Experience comes through an expenditure of time as well as money. Hence, as yet, "the plain people" have not attained to bicycles, and young men of good families largely tread their pedals. They are gentlemanly in their tastes and aspirations. Their positions require them to exercise gentility—kindly consideration for the feelings of others.

No one will deny their right to ride; most people will be glad they do. It is good, pleasant, innocent exercise.

But ought they to use the sidewalks?

The sidewalks were made for children, the aged, the infirm, the blind, the deaf, and the lame. When it is necessary to cross a street, it is done with caution, lest an accident occur. A fall, a misstep, slight inattention, may land the pedestrian under the feet of a horse or the wheels of a carriage. In cities policemen are put in charge of dangerous crossings as an additional precaution. Fast driving is in frequented streets, stricts forbidden.

The bicycle is a rapid machine for locomotion. It moves as fast as the horse, sometimes faster. It moves noiselessly, giving little warning of its approach. When propelled rapidly it is dangerous to life and limb. Serious accidents have been known to happen from collisions with children upon the sidewalks. Has it any business there at all?

The road is the place for vehicles. No one would think of running a bicycle over the sidewalks in a crowded city. Why then in the country? Are ladies better able to go into the streets to escape collision with the "machines" of able-bodied young men? Do these same young men wish their mothers and sisters to clear the way for them, when they are so fortunate as to see them at all?

To ask such questions is to answer them. The sidewalks are no place for bicycles, and gentlemen will have too much consideration for their neighbors to permit them to yield the walks for their enjoyment.

Besides, in most places, it is unnecessary. Hard roads furnish a much better place for the riding of bicycles than the sidewalks, which are continually broken in upon by crosswalks.

There are no doubt exceptions to this rule, where unusually bad roads make the use of sidewalks a great convenience, but in any case they should be used sparingly.

## OUR WATER SUPPLY.

*Editor Bloomfield Citizen:*

So many questions are asked, and so little is known of the system of working and arrangement of the plant of the East Orange Water Company, located near the Watseesian station, I ask you to publish the same in as prompt a part of your paper as possible.

The article I send is taken from "The Sanitary Engineer and Construction Record," of New York, and is authority on all water matters and sanitary arrangements.

C. E. McDowell.

Water Works of the East Orange and Bloomfield Water Company, New Jersey.

These works are situated on Grove street, about one and one-half miles northerly from the Grove street station on the Delaware, Lackawanna and Western Railroad. In connection with the subject of obtaining a water-supply from wells, these works possess especial interest from the fact that the water does not come through the soil, but from the rock below, and evidently has its source at some distance. The State Geologist, Professor G. H. Cook, thinks the source is the Orange Mountain, about three and one-half miles distant to the west. The elevation of surface at the site of the wells, according to the topographical maps of New Jersey, is about 100 feet above tide, while the elevation of the mountain is about 650 feet.

The pumping-station is situated in the valley, which is some fifteen feet lower than the road and 200 feet distant.

The pumping-engines are Gaskill compound duplex condensing engines with 10-inch and 20-inch steam and 12-inch water cylinders, with 18-inch stroke, with an estimated capacity of 1½ million gallons per day. Also, a Worthington duplex compound, with 12-inch and 18-inch steam and 14-inch water cylinders, with 10-inch stroke, and a capacity of 1½ million gallons. Either set is capable of supplying more than double the present requirements of the service, which are from 360,000 to 500,000 gallons. The supply is by direct pumping through two independent lines of 8-inch mains. The pres-

sure for domestic service is 70 to 75 pounds and for fire service 125 pounds.

The ground in which the wells are located was originally swampy, with a sluggish stream running across it. Mr. J. M. Randall, the Vice-President of the company and the designer of the works, began examining the site for water in 1883, by putting down a 6-inch tube-well to a depth of 95 feet. The water rose in this to within 5 feet of the ground surface. This well is inside of the pump house. A second well of same size was next put down to same depth at 200 feet north of first, followed by a third one about the same distance south. These when connected up furnished a supply of 350,000 gallons a day. The third pipe-well was put down to 110 feet deep, and the water was found to be harder than was desirable, this hardness seeming to increase with the depth.

Ten acres more of property were then bought, and a well 25 feet in diameter and 20 feet deep, was sunk at about 600 feet from No. 1, this being about 10 feet into the bedrock below. It was connected with the pumps by a 12 inch suction and yielded on a test about half a million gallons per day. The curb was a 20-inch cemented stone wall, tightly joined to the rock below, surmounted by a 12-inch cemented wall above, so as to shut out the surface and the ground water.

In 1884, No. 5 well, fifty-two feet in diameter and 20 feet deep, was sunk at about 600 feet from No. 1. This went 11 feet into the rock and will yield 1,000,000 gallons in 24 hours. It has been drawn upon continuously for six months at the rate of 500,000 to 600,000 gallons. The large well, No. 6, was put down in 1886, and is located about 700 feet from the pumping station. It is 100 feet inside diameter and 23 feet deep, being sunk about 12 feet into the rock. The stone wall up to about the ground surface is thirty inches thick, and the brick wall to the eaves above is 8 feet high and 12 inches thick. The building is a polygon with sixteen sides, each of 20 feet 4 inches external measurement, with a projecting entrance at one side. The height of the building over the well to the peak is about 60 feet, and the roof is in 4 slopes, with louvers covered by netting on the vertical faces between for ventilation.

The water stands in the well at about 18 feet depth, and is remarkably constant, no matter what the weather may be, and when not pumped from heavily the water in all three open wells rises about three feet above the ground surface. The well No. 6 is connected with No. 4 by an 8 inch siphon pipe (since the ground descends between the two,) and it therefore serves as a reservoir to be drawn upon when No. 4 is reduced enough to cause a flow between them. Its storage capacity is nearly 1,500,000 gallons.

As a proof that the water does not come from the surface soil, the following statement is made. When No. 6 was being built the supply was drawn from No. 5 for 5 months constantly. For 14 weeks of this time, while excavation was progressing, the pumps at No. 6 were kept running night and day to keep the water down so that the men could work, as it would submerge the work if pumping ceased but a few minutes. During the whole of this time the water stood in No. 4 at the full height, and without perceptible fluctuation.

The water seems to come in every where over the rock from seams and fissures in the red sandstone foundation. The rock is of a shaly character, brownish red in color, some layers being hard and resisting the weather, and others crumbling to pieces. The capacity of No. 6 is estimated at 14 million gallons per day.

The fact that the water grows harder at a greater depth was determined also by the borings at the Licorice Works on Bloomfield avenue, in Newark, about three fourths of a mile away to the east of No. 6 well. A 6-inch pipe was sunk 25 feet at a time to a depth of 100 feet, and the water tested at different depths, with the result that the best water was found at 25 feet from the surface. There are 75,000 gallons pumped per day from the well.

As to the quality of the water furnished by the East Orange Company, its temperature is 50 degrees Fahr. in summer and 47 degrees in winter. An analysis by Prof. Cook showed absolute freedom from organic matter, a hardness equivalent to calcium carbonate 5.091. Total solids in grains per gallon of 9.838 of which 24 grains were volatile (carbonic acid.) The remainder were as follows:

	Grains.
Chlorine as chlorides	.057
Sulphuric acid	.379
Silica	1.530
Iron and alumina	.001
Lime	2.809
Magnesia	.712
Soda	.196
Potash	.027
Total	.856

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NEWARK, N. J.

AMZI DODD, — President.

ASSETS (Market Values) Jan 1, 1887

\$40,826,264.15

LIABILITIES 4 per cent Reserve \$7,974,809.21

SURPLUS 2,851,454.94

PILOTS (N. Y. Standard) 5,512,129.31

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Second year.

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IN FORCE as long as its value will pay for; or, if

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